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ABSTRACT

This study describes the natural activities, behaviors and social interactions of 32 infants in their own homes. Participating families were from Oklahoma City, Oklahoma and Salem, Oregon; were involved in the Child and Family Resource Program (CFRP); and had a child between the ages of 11 to 14 months when the study was conducted. The families from Oklahoma City were black and the families from Salem were white. A comparison group was formed from families on CFRP waiting lists. For each family three half-hour videotapes were made. Videotaped behaviors of infants were coded using a coding system developed (by Jean Carew) for observations in the home. In addition to videotapes, parent interviews as well as observations of parent behaviors were conducted. In the analysis of the data, first, the frequency and consistency of the codes were examined. Second, the relationships of codes and coding dimensions were analyzed through factor analysis. Finally, differences between CFRP and control group families were examined through analysis of variance. Among the findings, CFRP children spent a greater proportion of their time in interaction with their parents (especially with the black families) and engaged in more fine motor exploratory behavior (especially in the white families). Further, trends suggested that CFRP family interactions more often included positive emotion and affection. (Author/RH)

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VIDEOTAPE PERSPECTIVES: IMPACT OF FAMILY ORIENTED INTERVENTION

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In 1973, the Administration for Children, Youth and Families (ACYF) initiated the Child and Family Resource Program (CFRP) as part of the Head Start Improvement and Innovation planning effort. CFRP was funded as a demonstration program with the intent of developing models for providing services to low-income families with young children--models which could be adapted by different communities serving different populations. There are eleven CFR programs across the country, one in each of the ten HHS (formerly HEW) regions and one representing the Indian and Migrant Division. Each program receives approximately $155,000-$170,000 per year to serve a minimum of 80 families.

CFRP is a family-oriented child development program which provides support services crucial for the sustained healthy growth and development of families who have children from the prenatal period through age eight. It promotes child development and meets children's needs by working through the family as a unit and provides continuity in serving children during the major stages of their early development. The CFRP enrolls eligible low income families whose children are under 8 years of age; a particular emphasis is placed upon children from birth to 3 years (the Infant-Toddler component) and on children from 5 to 8 years who have entered public school (the Preschool Linkage component). CFRP also includes traditional Head Start education and services for preschool children (ages 3 to 5) and their parents. Thus the program serves a broader age range of children than Head Start, and it is intended to focus on the entire family rather than just the child and works through the family to promote healthy growth and development for children.

Perhaps the most distinctive feature of CFRP is its emphasis on a comprehensive assessment of each family's strengths and needs and the development with the family of an individualized plan for services to be obtained through CFRP.

CFRP staff are generally community based paraprofessionals. They provide parent education and support for children through home visits and group meetings. Meetings include both parent/staff and parent-child/staff groups. While the CFRP is guided by an overall philosophy and specific program guidelines concerning components, implementation varies from site to site (and from family to family) based upon the expressed needs of families served and the organization and composition of the staff.

The comprehensive nature of CFRP poses many problems for evaluation, both conceptual and methodological in nature. Among the most difficult problems is the assessment of the impact of such a complex intervention program upon infants. Outcomes for infants as a result of participation in CFRP depend primarily on the program's work with parents rather than on intervention directly with children. The infant-toddler component in CFRP emphasizes development of parenting skills, frequent and positive parent-infant interaction, and the growth of the family as a child-rearing system.

One of the common goals of all CFRPs is to increase positive interactions between parents and their infants, particularly during the first year of life. That goal serves as the basis for the current study, which was part of a larger evaluation of the entire demonstration program (funded in October, 1977, as a longitudinal study of the program's effectiveness). Research concerned with the evaluation of social support programs has rarely focused upon unconstrained activities, behavior, and social interactions of infants in their own homes. While many research projects have dealt with assessment of infant behavior and parent-child interaction, observations have been most often conducted in experimental or waiting room contexts. Further, few well accepted procedures or measures have emerged from this work. Of major relevance to CFRP is research pertaining to the role of the <u>mother as teacher</u> (in addition to such roles as nurturer, caregiver, and

provider). This research has involved observational methods (often supplemented by interviews) using home, experimental, and waiting room contexts. Several studies have emphasized social class (Bee, 1969; Brophy, 1970; Hess and Shipman, 1965, 1967; Stodolsky, 1968; Tulkin and Kagan, 1973) or ethnic (Steward and Steward, 1973) differences, with the children typically being observed at one point in time. Others have emphasized individual differences within lower income groups (Slaughter, 1969; Gordon, 1969; Herman, 1970; Radin, 1971). Some have included repeated observations over several months, thus employing longitudinal designs (Clarke-Stewart, 1973; Carew, 1975). Others have obtained such data in the conduct of experimental intervention programs targeted at mother-child dyads (Gorden, 1970; Schaefer, 1969; Levenstein, 1970; Robinson, 1975).

The results of these studies indicate that maternal teaching behavior is likely to be relatively infrequent and informal. The most important teaching activities (judged by child performance outcomes at a later period) are embedded in mutually reciprocal interactions wherein the mother initiates interaction at appropriate moments, is responsive to child signals, and actively participates in activities with children.

An effective pattern of communication between mother and infant is critical. Particular discrete maternal behaviors or techniques, such as praise or disparagement, are not as important as an overall style of behavioral organization which has been labeled individuating (Slaughter, 1969), contingently responsive (Ainsworth, 1973; Clarke-Stewart, 1973), participatory (Carew, 1975), and personal-subjective (Hess and Shipman, 1965, 1967). This type emphasizes the proactive, orienting, structuring, stimulating, focusing elements of maternal behaviors in interaction with young children, in contrast to restrictive, controlling, or laissez-faire orientations, however warm in character and well-intentioned in aim.

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Methods. This report describes procedures and results of a study using videotape recordings from the homes of 32 families in two CFRP locations (Oklahoma City and Salem, Oregon). During May 1979 children and their families were observed at home using portable cassette videotape equipment. The sample consisted of families from the two sites in CFRP and comparison groups. Six months before the videotape sessions, families have been randomly selected from waiiting lists for participation in CFRP in each city. The comparison group consisted of families on the waiting list but not selected for the CFRP at that time. In all, 40 families were selected for CFRP at each of six sites; all families had a child under one. By spring, 1979, ages ranged from 6-19 months. With limited resources and a relatively small sample, it was decided to concentrate on the middle of this age range. All participating families had a child between 11-14 months of age.

For each famiiy, three half-hour videotapes were made over two separate days at different times of the day (morning, early and late afternoon). The TIES coding system, developed by Jean Carew for observations in the home, was applied by coders who were unaware of the group assignment of the families. The TIES coding system is organized: (a) to trace the development of various social, language, spatial, expressive, reasoning, fine motor, and gross motor competencies as these are manifested in the child's observable behavior; and (b) to specify the forms of environmetal stimulation (chiefly the behaviors of caregivers and others directed toward the child) that the child receives and that are likely to promote these competencies.

The study procedures were shaped by concerns about research quality, staffing/implementation processes, and costs. On balance, naturalistic home observations could provide a basis for an ecologically valid assessment using

measures of program effectiveness that are related to program emphasis. Videotape recordings were recommended because they provide the opportunity to assess the reliability of coding procedures and to extend or correct the coding if necessary. Observations on two different days were included in order to assess the stability of the observed behaviors and to assure the comparability of the procedure for both CFRP and control groups (CFRP families might be initially more at ease with visitors in the home as a result of program experience). Finally, the observations were liimited to two sites due to a desire to retain adequate control over the data collection process and because of financial constraints.

Videotape sessions were completed for 34 families (15 from Oklahoma City, 19 from Salem). One set from Oklahoma City was judged too dark to code acceptably; one set of Salem videotapes was removed from the data base because he focal child's mobility had been limited by a half-body cast. The final data base consisted of 32 families, distributed by group and site as shown below. All of the families from Oklahoma City were black, and all from Salem were white.

Table 1

	CFRP	Comparison	
Oklahoma City	7	7	14
Salem	9	9	18
	16	16	

Structure of data collection. The videotaping of the child's natural activity in the home was the primary focus of the observation data collection. However, several other types of information were collected during three visits to each family. During the first two visits, two CFRP evaluation staff (a videotape comeraperson and an interviewer/facilitator) were present. The third visit was

completed by the cameraperson alone. The visits were structured as follows:

Visit #1	Completed parent interview. Introduced parent to videotape equipment and demonstrated procedures for videotaping (including 5-minute practice tape and immediate playback of the tape so mother could watch). Obtained mother's agreement to participate in observations.	1 1/2-2 hours
Visit #2	After a brief period of setting up equipment and getting reacquainted, made two 30-minute videotapes of the child as he/she naturally appears at home. during videotaping segments, facilitator coded the activities of mother.	Less than 2 hours
Visit #3	After a brief period of setting up equipment, made another 30-minute natural observation videotape of child, followed by a 30-minute playback interview with mother.	

Data collection training. The two-person site teams were trained in videotape data collection procedures during a three-day period. The site teams were previously unfamiliar with videotape equipment or general observation procedures. Therefore, training emphasized the skills necessary to collect the actual videotape records.

Overall, the training was considered successful by all staff. The cassette videotape equipment was easier to handle and more trouble-free than most had expected. The procedures were simple enough and the staff quick enough so that few obvious problems were present at the conclusion of the training (see below for a review of videotape data quality).

TIES training and coding. Coding-interval beeps were added to the videotapes before TIES coding. In addition, the tapes were given coded identification numbers so that the group assignment (CFRP/non-CFRP) of the family would be unknown to coders. The coding schedule required three individuals (two trainees and one experienced TIES staff member) to code 20 of the videotapes for later analysis of coder reliability and code generalizability. The remaining tapes were coded by one of the two trainees.

TIES staff rated quality of the tapes on a three-point scale for several dimensions throughout the coding process. As indicated in Table 2, the most severe problems were found in the audio ratings (36% less than adequate). overall, 22 percent of the tapes were rated less than adequate; of these, 12 percent were CFRP and 10 percent were comparison family tapes. Problems appeared more often in the Oklahoma City tapes (14%) than in Salem (8%). Essentially, the TIES coders were comparing the CFRP tapes with their prior experience--that is, with the training tapes. The training tapes had been selected from those made by the TIES project over a lengthy period of time by experienced camera-persons, and they were selected at least partially for their high quality. In general, the CFRP tapes were inferior both in audio quality (more outdoor taping, more family members present, more background noise) and video quality (home interiors generally darker).

Table 2

TIES Coder Rating of Videotape Quality

(percent)

	Barely Usable	Problem-atic	Adequate	Good	Very Good
Audio	16	20	44	12	7
Video	12	15	39	12	17
Overall	10	12	47	18	9

In addition to concerns with videotape quality, the TIES coders felt that the children in the pilot study sample were more diverse in behavior and more mobile than those in the training tapes.

Data Analysis

Analysis of the CFRP-TIES data base consisted of three steps. First, the frequency and consistency of the TIES codes were examined. Second, the relationships of codes and coding dimensions were analyzed through factor analysis. Finally, differences between CFRP and control-group families were examined by means of analysis of variance.

TIES coding categories. TIES codes specify the activity of the child and the characteristics of the child's social interactions. The child's activities, interactions, and behavior are observed for 3 seconds and coded over the next 17 seconds (a complete observation sequence every 20 seconds. From the videotapes, the first 75 coded observation frames were included in the CFRP data base (this was done to equalize the number of data points for each child).

The 12 major coding dimensions of TIES are as shown below. In all, 74 codes are available for use in the 12 coding categories.

- Activity. The activity codes include behavior relevant to social-emotional development (distress, affection, control, negative/aggressive); behavior relevant to intellectual development (learning language, fine motor spatial, fine motor exploratory); and general behavior (gross motor, physical needs, monitoring, and transitional activity).

- Caregiver location. The caregiver location is coded as near (3-4 feet from the child) or far/absent.
- Identity of interactor. If the child is engaged in social interaction, the interactor (mother, father, other adult, other child, group0 is identified.
- Interaction type. Interactions are coded as convergent (shared focus for the interactors), divergent (different focus/purpose), or borderline (minimal involvement by one of the interactors).
- Interaction source. The active individuals during interactions are identified (child, interactor, or both).
- Interaction facilitaton. Modes through which the interactor facilitates the child's activity are identified (teach, play, help, direct, conversation, look/listen).
- Interaction control. The mode and strength of interactor control of child's behavior is recorded (explain, routine, strict).
- Interactor language (present, present but unintelligible, not present).
- Interactor emotion (happy, sad, angry, neutral).
- Child emotion (happy, sad, angry, neutral).
- Child mobility (unrestricted, held, confined).

Frequency and consistency of TIES codes. As expected, considering the age of the child sample, many of the available codes were rarely used. The remainder of this report considers only those codes that occur in more than 2 percent of the observation frames. Table 3 illustrates frequencies for these codes and the consistency of these codes from the first to the second half hour (first-day observations) and from the first day to the second day of observations.

Table 3

Frequency and Consistency of Selected TIES Codes

	Percent of all codes	Percent of interactions only	Consistency (correlatio First half-last half	Day-to-d
Activities				
Negative	2.95	5.76	.25	.19
Control	5.29	16.53	.72*	.16
Distress	2.11	3.45	.19	.10
Affection	4.63	13.87	.33*	.26
Fine motor exploratory	22.68	11.82	.26	.12
Physical needs	15.08	13.44	.10	.22
Monitoring	15.28	5.41	.48*	.43*
Transition	22.32	11.69	.27	.21
Caregiver Location				
Near	38.44		.39*	.28
Identity of Interactor				
Caregiver/mother	22.17	68.78	.56*	.21
Father	2.50	7.76	.69*	.58*
Other adult	3.63	11.26	.26	.16
Other child	2.99	9.28	.54*	.32*
Interaction Type				
Convergent	27.71	85.98	.51*	.52*
Divergent/borderline	4.39	13.62	.42*	.32*
Interaction Source				
Child	8.57	26.59	.34*	.27
Child/interactor	12.39	38.44	.46*	.44*
Interactor	11.27	34.97	.40*	.124
Interaction Facilitation				
Play	5.02	15.58	.46*	.39*
Help	9.91	30.74	.36*	.37*
Conversation	2.32	7.20	.42*	.40*
Look/listen	4.56	14.15	.35*	.30
Control				
Routine	5.00	94.2**	.58*	.18
Interactor Language				
Present	11.63	36.08	.50*	.31
Interactor Emotion				
Happy	5.69	17.65	.36*	.32*
Neutral	25.76	79.93	.52*	.58*
Child Emotion				
Happy	5.69		.43*	.43*
Sad	2.30		.03	.00
Angry	3.52		.42*	.42*
Neutral	86.23		.13	.10
Child Mobility				
Free	82.81		.47*	.36*
Held	9.57		.28	.20
Confined	7.05		.69*	.63*

n=32

*$p \leq .05$

**percent of control interactions only.

Eight of the 24 activity codes account for over 90 percent of the infant activities. Fine motor exploratory behavior is the most frequently used code (22.7%), followed by transitional activity (22.3%), observing/monitoring (15.3%), and physical needs (15.1%). As a group, the activity codes are relatively stable within the same day (average correlation=.33), but less so from day-to-day (average correlation=.21).

The infants were engaged in social interaction only about 32 percent of the time. About 69 percent of those interactions were with their mothers, and another 8 percent with their fathers. The frequency of interactions was substantially more consistent than the frequency of various activities, both within day (average correlation=.51) and between days (average correlation=.32). Certain activities were more likely to involve social interaction. Control affection, and physical needs activities almost always involved interaction (and make up about 40 percent of the children's interaction activities), while fine motor exploratory and transition activities were rarely social in nature.

The primary characteristics of the infant's social interactions are that they were convergent (86% of all interactions), and that child and interactor were almost equally active (see interaction source frequencies); the most frequent methods used by interactors to facilitate an activity with the child were helping (30.7%) and playing (15.6%). Direct teaching was rare, and language was used by interactors only 36 percent of the time. Positive (happy) emotion was resent in only about 18 percent of the interactions; that proportion far exceeds, however, the 2.2 percent of interactions in which anger was in evidence. Overall, the dimensions of infant social interactions are quite stable both within day (average correlation =.44) and across two different days (average correlation =.33).

A study of the reliability of TIES codes and generalizability of the observed child behaviors (a G-study in Cronbach terms) was conducted. Videotapes for the G-study were selected at random from the pool of tapes available for the families in the observation study; half from the CFRP group and half from the comparison group. None of the coders knew the group membership of any families (CFRP or control) and G-study tapes were interspersed throughout the coding period with other pilot study tapes.

The G-study was carefully planned: the design was balanced, three coders crossed with ten families, and videotapes were made on two separate days. Each day's videotape consists of four six-minute segments, each segment consisting of 18 consecutive coding frames. The analysis of the data, then, was straightforward.

Variance components estimates were computed by random effects ANOVAs for coders, families, days, coder-by-family interactions, and videotape segments within day. As expected, the largest error components tend to be for segment to segment and residual variation. The major question was whether coder effects contribute more or less variation to measures than family effects. The results were consistent for all of the codes analyzed. Coders contributed extremely small amounts to the total variation measured (generally less than 2 percent for each code), demonstrating a high degree of between-coder agreement. As would be expected, most of the variation was associated with tape segments (or moment-to-moment conditions influencing the child's behavior). A large proportion of the variation (up to 35 percent for some codes) was associated with families, however, suggesting measurable consistency in between-family differences. The high level of coder agreement presumably results from intense coder training, a manageable and specific coding scheme, and the use of videotape allowing frequent replay of difficult segments.

Several behavior codes demonstrate excellent generalizability, even for a short observation period (see Table 4). As expected (given the magnitude of the segment-to-segment variation), the generalizability of all codes increases with observation time. Under a one-day, 30-minute observation design, for example, 13 of the 22 codes have estimated generalizability coefficients less than .50, while only three have coefficients .70 or higher. Under a two-day, 60-minutes-per-day design, only five coefficients are less than .50, while 12 are .70 or higher. The median increase in generalizability between these two designs is .23.

Interrelationships of codes. The next step in the analysis was to examine how the codes from the various categories were related. A set of 24 variables wer entered into a principal component factor analysis with varimax rotation. The 24 measures included the 8 most frequently occurring activity codes; the frequency that the mother wasnear the child; the total amount of interaction; the proportion of total interactions involving the mother; the proportion of divergent or borderline interactions; the proportion of interactions where the child was active (either alone or in combination with the interactor); the interaction facilitation codes; the proportionof interactions where the interactor used language, was happy, and was angry; the proportion of time where the child was happy and angry; and the proportion of time the infant was being held. The measures were selected on the basis of relative frequency, relative independence, and anlytic meaning. The factor analysis produced 10 orthogonal factors accounting for 86 percent of the variation in the 24-measure set. When rotated, the 10 factors had a clean structure, combining variables in a logically interpretable pattern. Table 5 shows the highest loadings on the varimax rotated factor matrix.

Table 4

TIES Generalizability Coefficients
Given Two Coders and Observation Periods as Shown

Behavior	One day 30 mins	One day 60 mins	Two days 30 m/day	Two days 60 m/day
Negative aggression; angry; hostile	.17	.26	.30	.41
Controlling, restricting; disapproval	.63	.77	.77	.87
Show affection; social games	.40	.48	.57	.65
Physical needs; self-care	.29	.37	.45	.54
Child monitors, no interaction	.37	.47	.50	.58
Transitional; child changing position	.18	.25	.25	.31
Child emotion: happy, excited	.62	.75	.76	.86
C. emotion: anger, phys-verb aggress.	.16	.24	.28	.39
Child mobility; physically restrained	.52	.62	.67	.75
Interaction convergent, both active	.77	.83	.87	.91
No interactor language	.49	.59	.65	.74
Interactor emotion: happy	.47	.58	.63	.72
I. controls by routine statement	.61	.76	.76	.86
Interactor facilitates by playing	.28	.34	.43	.50
Interactor facilitates by helping	.46	.58	.63	.73
I. facilitates by looking, listening	.06	.07	.10	.12
Source of activity: child only	.19	.22	.31	.36
Source of activity: interactor only	.38	.48	.54	.63
Source of activity: C & I	.51	.58	.67	.73
Location of caregiver	.52	.56	.68	.71
Total interaction	.74	.81	.85	.89
Proportion of interaction w/ mother	.72	.80	.81	.86

*Rare codes, recoded from 0, 1 for each frame to 0, 1 for each six-minute segment.

The factor analysis included descriptors for the entire set of child behavior, including both solitary activities and social interaction. Four of the 10 factors are identified largely by activity code descriptions. These include the activities where interaction is most likely: affection, physical needs, and fine motor exploration, as well as distress. The remaining factors are related to aspects of social interaction: the frequency of mother-child interaction, the frequency of physically proximal interactions, child-active interactions and angry interactions, and the frequency of two facilitation modes--conversation and helping.

Factor I: Affectionate Mutural Interactions. The first factor reflects interactions involving affection (.89) and play (.93), with both child and interactor active in the interaction (.69) and exhibiting positive emotion (.83, .79). This combination is relatecd to a relatively high total amount of social interaction for the child (.54).

Factor II: Child-Active Interaction. High child activity (.89) during interaactions and high frequencies of interactor looking/listening (.73) combined with relatively frequent divergent or borderline interactions (.78) to characterize the second factor.

Factor III: Physically Proximate Interactions. The third factor is loaded heavily on dimensions of caregiver proximity to the child--caregiver near child (.76) and child held by interactor (.70). Physically proximate interactions are associated with a high level of total interaction (.75), a low frequency of monitoring activity by the child (-.56), and a relatively high level of control activity (.55).

Table 5

TIES Varimax Rotated Factor Structure

Activities	I	II	III	IV	V	VI	VII	VIII	IX	X
Negative				.78						.44
Control			.55			-.58				
Distress										.68
Affection	.89									
Fine motor exploratory									.73	
Physical needs								.96		
Monitoring			-.56							
Transition								-.49		-.44
Location of Mother										
Near			.76				.40			
Interaction Characteristics										
Total interaction	.54		.75							
Mother-child interaction							.81			
Divergent/borderline interaction		.78								
Child active in interaction		.80								
Child and interactor active in interaction	.69									
Interactor plays	93									
Interactor helps						.89				
Conversation					.87					
Interactor looks/listens		.73								
Interactor uses language					.82					
Interactor happy	.83									
Interactor angry				.75						
Child happy	.79									
Child angry				.69						
Child held			.70							

*loadings greater than .40

Factor VI: Helping Interactions. Factor VI consists of high frequency of help facilitation by the interactor (.89) combined with a low level of control activity (-.58).

Factor VII: Mother-Child Interactions. A high proportion of interactions involving the mother (.81) and mother remaining near the child (.40) make up this factor.

Factor VIII: Physical Needs Activities. This factor combines physical needs (.96) with few transitional activities (-.49).

Factor IX: Fine Motor Exploratory Activities. The ninth factor loads heavily only on fine motor exploratory activity (.73).

Factor X: Distress. The final factor is a combination of high distress (.68) and negative activity (.44) and little transitional activity (-.44).

The factors resulting from the varimax rotation were sufficiently simple and coherent to be useful in comparisons between the pilot study sites and between teh CFRP and control groups. Factor scores were computed and analyzed by a 2x2 ANOVA, as were the primary component variables for each factor. Significant differences ($p<.5$) were found for both program and site factors. The results of these analyses are shown in Table 6.

Program differences. Difference between CFRP and control families were observed on two important dimensions. Interactions between mothers and infants occurred more frequently in CFRP families, overall and as a proportion of all social interaction (Table 7). Also, CFRP children appeared to engage in fine motor exploration more often.

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Table 6

Site and Program Differences (Factor Scores)

		Site			Program		
		Salem	Oklahoma City	F	CFRP	Control	F
I	AFFECTIONATE MUTURAL INTERACTIONS	0.15	-0.15	0.35	0.35	-0.35	2.53
II	CHILD-ACTIVE INTERACTIONS	-0.28	0.28	3.52	-0.13	0.13	0.56
III	PHYSICAL PROXIMATE INTERACTIONS	-0.37	0.37	6.14*	0.18	-0.18	0.29
IV	ANGRY INTERACTIONS	0.07	-0.07	0.10	0.28	-0.28	2.33
V	LANGUAGE INTERACTIONS	0.36	-0.36	5.25	-0.12	0.12	0.46
VI	HELPING INTERACTIONS	-0.02	0.02	0.02	-0.08	0.08	0.14
VII	MOTHER-CHILD INTERACTIONS	-0.32	0.32	2.99	0.41	-0.41	5.31
VIII	PHYSICAL NEEDS ACTIVITIES	0.01	-0.01	0.01	-0.13	0.13	0.37
IX	FINE MOTOR EXPLORATORY ACTIVITIES	-0.06	0.06	0.10	0.50	-0.50	8.73
X	DISTRESS	-0.04	0.04	0.03	0.32	-0.32	2.40

*$p < .05$

The results were not uniform across sites. Mother-child interaction levels were higher in Oklahoma City CFRP families than in any other group. Similarly, fine motor exploration was more frequent among the Salem CFRP children than in other groups. For both measures, however, the trend was consistent over both sites.

Because of the general CFR program emphasis on increasing mothers' sensitivity to their children and providing stimulation to infants, it can be argued that these are two of the most important dimensions in the observation coding. Higher frequency of interaction between mothers and children may have later impact on social, emotional, and cognitive development of the child. Similarly, a high frequency of fine motor exploratory aactivity may suggest early skill at fine motor manipulation, which may in turn represent a precursor to later cognitive development.

Table 8 suggests that the pattern of interactions are different for observed CFRP children and for the control group. As shown--interactions for control group children is concentrated (almost forty percent) in control and physical needs interactions. The CFRP children experience a more varied set of interactions--peaking nicely enough around affection.

Site differences. Site differences were observed for factors relating to physically proximate interactions and language interactions (Table 6). The first of these occurred more freequently in Oklahoma City, the second in Salem. These differences suggest different interaction styles (interpretable as a preference for proximate or distal forms of social interaction) that might reflect either ethnic (black Oklahoma City families/white Salem families) or regional (Southwest/Northwest) variation.

Table 7

Expansion of Program and Site Differences

	Percent Occurrence				Significance of Comparisons					
	CFRP		Control		Site		Program		Interaction	
	Oklahoma City	Salem	Oklahoma City	Salem	F	P	F	P	F	P
Program Differences										
VII MOTHER-CHILD INTERACTIONS										
o Mother Interacts with Child (proportion of all activity)	32.7	23.2	15.2	18.4	0.82		9.13	.005	3.39	.08
o Mother Interacts with Child (proportion of social interaction)	77.1	80.5	53.3	67.6	2.09		5.30	.02	1.00	
IX FINE MOTOR EXPLORATORY ACTIVITIES										
o Fine Motor Exploratory Activity	22.0	29.1	20.1	18.8	1.80		9.49	.005	3.72	.06
Site Differences										
III PHYSICALLY PROXIMATE INTERACTIONS										
o Control Activity	6.4	4.7	7.1	3.5	4.97	.03	0.11		0.65	
o Caregiver Near Child	53.7	38.5	30.5	32.7	1.75		7.67	.01	3.15	.09
o Child held	17.4	5.3	9.0	8.2	4.35	.05	1.26		3.21	.09
V LANGUAGE INTERACTIONS										
o Conversation	3.8	7.9	4.0	11.6	5.65	.02	1.80		0.50	
o Interactor Uses Language	24.9	44.5	25.4	46.2	10.08	.004	0.03		0.01	

Table 8

Social Interactions by Activity
(Percentage)

Activity	CFRP	Control
Negative	5.8	5.8
Control	13.6	20.2*
Distress	3.9	2.8
Attention Seeking	4.0	3.1
Affection	17.3	9.6*
Language Information	3.1	3.0
Fine Motor Exploratory	12.7	10.7
Gross Motor	2.8	1.0
Physical Needs	10.5	19.0*
Social Conversation	2.5	1.8
Direct/Is directed	3.6	7.2
Monitors	5.9	4.8
Transition	14.6	11.0

*$p < .05$

Differences in child-rearing styles associated with each of these factors has been noted in prior national research.

Discussion

The study results are encouraging. Videotape data collection, coding, and analysis of naturally occurring activity in the home have been shown to be feasible and to yield outcomes that have high face validity and reflect possible impact in areas that are of high relevance to the CFRP--e.g., increased levels of mother-child interaction and fine motor exploratory activity by infants 11-14 months of age. Nevertheless, several questions and issues remain.

First, do the results reflect true program impact or sensitazation of CFRP families to social desirability of certain behavior under observation conditions? There is no reliable way to determine the degree to which parents might be "acting" for the camera. However, ratings of the videotapes by the TIES staff did not reveal any suspicious patterns of behavior. Overall, most of the tapes were rated as consisting of a natural pattern of activities by adults. Tapes that were rated as suspect were distributed equally among CFRP and control families in both sites.

Second, how is observed behavior related to program variation between sites and to variation in level of program exposure within sites? The small size of this sample made process/outcome analysis inadvisable. At this point in the evaluation, too little is known about the critical features of the CFRP and the reliability of measures of such features to allow for an analysis of relationships between program exposure and family activities. The differences in results by site, noted in the previous section, might be the result of program variation or they might be attributable to the aforementioned regional or ethnic differences in the sample observed.

Third, should the observation study continue as the children grow older? Given the promising results presented here and the potential for detailed examination of child-rearing environments and parent-child interaction afforded by the videotape methods, we recommended that observations continue in the CFRP evaluation. Target children were approximately two years old in spring 1980. With only slight modifications of the coding system and data collection effort we are now in the process of capturing detailed information through videotape observations about the social and nonsocial activities of two year old children in CFRP and comparison groups. Continued observation of

more developmentally appropriate parent-child interaction in the CFRP families than in the control families through several rounds of observations could provide useful validation of CFRP effectiveness and add to the available body of information for policymakers and family program planners.